

**Course Name:** Ethernet Fundamentals

**Course Overview:**

Ethernet technology is the driving force inside our Local Area Network today and is the most widely used. It can operate at many different speeds providing for better data transfer. This 1-Day course is designed to introduce the student to the major technology being utilized by LAN Area Networks to transport data. A major component of this course is the open forum for questions and discussion on current and future trends in the network arena. This course can be combined with other courses such as VOIP to give you a customized solution.

**Course Length:** 1 day

**Who should attend?**

- LAN/WAN/Internetworking Technicians
- Network Administrators
- Site operators and managers
- Managers and supervisors
- Non-technical employees who interface with networks

**You will learn:**

- Ethernet Terminology
- Types of Topologies
- Different Speeds of Ethernet
- Limitations of Ethernet
- Network Equipment

**Prerequisites:** None

**Customizable Course:** Yes

**Course Content:**

Ethernet Fundamentals

- Ethernet Standards
- Ethernet Basics
- Common Topologies
- CSMA/CD
- Bandwidth
- Switched and Full-Duplex Ethernet

Ethernet Frame

- Frame Format



- Interframe Gap
- Frame Format Extensions
- VLAN tagging

#### OSI Model

- Physical Layer
- Data-Link Layer
- Media Access Control
  - MAC Addressing
- Translations between Layer 3 and Layer 4

#### Ethernet Cables

- Cables and Connectors
- Distance Limitations
- Pinouts
- Straight Through
- Cross Over
- Roll Over
- Ethernet over Fiber

#### Equipment Used in Ethernet

- Equipment Overview
- Home Networking Overview

#### Gigabit Ethernet

- Overview
- Layer 1 options
- Connector Pinout Requirements
- Bandwidth
- Frame Extension Field
- Frame Bursting

#### Power over Ethernet

- PoE Standards
- Overview

#### Testing and Troubleshooting Ethernet

